Network+ Guide To Networks

Tamara Dean

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Cover Designer:
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PREFACE

Knowing how to install, configure, and troubleshoot a computer network is a highly marketable and exciting skill. This book covers a wide range of material about networking, from assessments of careers in networking to discussions of local area networks, wide area networks, protocols, topologies, transmission media, and security. It not only introduces a variety of concepts, but also provides in-depth examinations of the most significant aspects of networking, such as the TCP/IP protocol suite. In addition to explaining concepts, each chapter includes several real-world examples of networking issues from a professional's standpoint, making the book a practical learning tool.

The material in this book addresses all of the objectives for CompTIA's Network+ certification. Individual chapters discuss the following topics:

Chapters 1, 2, and 3 provide an introduction to networking fundamentals, including networking standards organizations, the OSI Model, and networking protocols.

Chapter 4 builds on the fundamentals introduced in earlier chapters by explaining data transmission methods and transmission media, such as twisted-pair copper wiring and fiber optic cabling.

Chapter 5 discusses the variety of physical and logical topologies used in local area networks.

Chapters 6 examines the physical components of a network, including network interface cards, hubs, routers, bridges, and switches. In Chapter 6, you will find several photos portraying typical networking equipment.

Chapter 7 expands on your knowledge of local area networks by examining wide area networking topologies and transmission methods.

Chapters 8, 9, and 10 introduce the most popular network operating systems: Windows 2000, NetWare, and UNIX.

Chapter 11 provides a detailed examination of the components and uses of the TCP/IP protocol suite, the most popular protocol in use on contemporary networks.

Chapters 12 and 13 approach the tasks of troubleshooting and maintaining networks in a logical, practical manner. Once you have learned how networks operate and how to create them, you will need to know how to fix and maintain them.

Chapters 14 and 15 consider how to keep the network safe in the face of dangers such as power flaws, hardware or software failures, and security breaches. In Chapter 15, you will also learn about firewalls, encryption, and how to implement an enterprise-wide security policy.

Chapter 16 brings together all of your knowledge about networking by tackling a network implementation project. This chapter includes tips on project planning specifically for technical endeavors.

The five appendices at the end of this book serve as references for the networking professional. Appendix A provides a complete listing of the Network + certification exam objectives, including what percentage of the exam's content they represent. Appendix B offers a practice exam containing questions similar in content and presentation to those you will find on the Network+ examination. Appendix C provides a visual connector reference chart for quick identification of connectors and plugs used in networking. Appendix D gives examples of forms that you can use while planning, installing, and troubleshooting your network. Appendix E expands on what you learned about networking hardware by providing pictures of a typical networking professional's tools.

THE INTENDED AUDIENCE

This book is intended to serve the needs of professionals who are interested in mastering broad, vendor-independent networking concepts. In particular, it will help those professionals who are seeking to pass the Computing Technology Industry Association's Network+ certification exam. For more information on Network+ certification, visit CompTIA's web site at *www.comptia.org*. The text and pedagogical features are designed to provide a truly interactive learning experience, preparing you for the challenges of the highly dynamic networking industry. In addition to the information presented in the text, each chapter includes Hands-on Projects that take you through various tasks in a step-by-step fashion. Each chapter also contains a running case study that places you in the role of problem solver, requiring you to use concepts presented in the chapter so as to achieve a successful solution.

FEATURES

To aid you in fully understanding networking concepts, this book includes many features designed to enhance your learning experience.

- **Chapter Objectives.** Each chapter begins with a detailed list of the concepts to be mastered within that chapter. This list provides you with both a quick reference to the chapter's contents and a useful study aid.
- **Illustrations and Tables.** Numerous illustrations of server screens and components help you visualize common setup steps, theories, and concepts. In addition, the many tables included provide details and comparisons of both practical and theoretical information.
- **Hands-on Projects.** Although it is important to understand the theory behind networking technology, nothing can improve upon real-world experience. To this end, along with theoretical explanations, each chapter provides numerous Hands-on Projects aimed at providing you with practical implementation experience.

- **Chapter Summaries.** Each chapter's text is followed by a summary of the concepts introduced in that chapter. These summaries provide a helpful way to recap and revisit the ideas covered in each chapter.
- **Review Questions.** The end-of-chapter assessment begins with a set of review questions that reinforce the ideas introduced in each chapter. Answering these questions will ensure that you have mastered the important concepts.
- **Case Projects.** Located at the end of each chapter are several cases. In these extensive exercises, you implement the skills and knowledge gained in the chapter through real design and implementation scenarios.

TEXT AND GRAPHIC CONVENTIONS

Wherever appropriate, additional information and exercises have been added to this book to help you better understand the topic at hand. Icons throughout the text alert you to additional materials. The icons used in this textbook are described below.

The Note icon draws your attention to additional helpful material related to the subject being described.

Each hands-on activity in this book is preceded by the Hands-On icon and a description of the exercise that follows.

Tips based on the authors' experience provide extra information about how to attack a problem or what to do in real-world situations.

The cautions warn you about potential mistakes or problems and explains how to avoid them.

Case Project icons mark case projects, which are more involved, scenario-based assignments. In these extensive case examples, you are asked to implement independently what you have learned.

INSTRUCTOR'S MATERIALS

The following additional materials are available when this book is used in a classroom setting. All of the supplements available with this book are provided to the instructor on a single CD-ROM.

Electronic Instructor's Manual. The Instructor's Manual that accompanies this textbook includes the following items:

- Additional instructional material to assist in class preparation, including suggestions for lecture topics, suggested lab activities, tips on setting up a lab for the hands-on assignments, and solutions to all end-of-chapter materials

ExamView Test Bank. This cutting-edge Windows-based testing software helps instructors design and administer tests and pretests. In addition to generating tests that can be printed and administered, this full-featured program has an online testing component that allows students to take tests at the computer and have their exams automatically graded.

PowerPoint presentations. This book comes with a set of Microsoft PowerPoint slides for each chapter. These slides are meant to be used as a teaching aid for classroom presentations, to be made available to students on the network for chapter review, or to be printed for classroom distribution. Instructors are also at liberty to add their own slides for other topics introduced.

MeasureUp™ Test Prep Software. Test preparation software for the revised Network+ exam will be available within 90 days of the new exam's release. You can download copies of this software free of charge at Course Technology's website at: *www.course.com/comptia*. Click the link for Network+ Test Prep. The user name and password is: testprep. This password is case sensitive and does not contain a space between the two words. After the test prep software is available, it will be available on CD in future printings of this book.

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